

# GCSE Physics: what you need to know

## Domestic electricity

D.c., a.c. and the National Grid	I can do this already	Covered in	Strength	Weakness	I have revised this	Book references
I can describe the difference between <b>direct current</b> (d.c.) and <b>alternating current</b> (a.c.).						
I can name sources of <b>direct current</b> and of <b>alternating current</b> .						
I can describe the frequency and voltage of the a.c. supply used in the U.K..						
I can explain what is meant by the <b>National Grid</b> .						
I can describe the function of a <b>transformer</b> .						
I can explain the difference between <b>step-up</b> and <b>step-down</b> transformers.						
I can describe how the National Grid makes electricity distribution more efficient.						

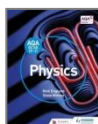
Connecting safely to the grid						
I can name the three wires inside a 3-core cable.						
I can describe the insulation colours of the wires inside a 3-core cable.						
I can explain the materials chosen for the different parts of a 3-pin plug.						
I can describe the potential differences of the live and neutral wires.						
I can describe the purpose of an <b>earth</b> wire.						
I can explain why it safe for some appliances (e.g. hair dryers) not to have an earth connection.						
I can explain why it is always dangerous to touch a live wire, even when the appliance is not switched on.						
I can explain how a <b>fuse</b> works.						
I can name the types of fuse commonly used in 3-pin plugs.						

Energy transfers, power and efficiency						
I can describe the energy transfers that take place in common electrical appliances.						
I can name factors that determine the amount of energy transferred by an appliance.						
I can recall the equation that links <b>energy</b> , <b>power</b> and <b>time</b> .						
I can recall the equation that links <b>power</b> , <b>current</b> and the <b>potential difference</b> ('voltage') across an appliance.						
I can recall the equation that links <b>power</b> , <b>current</b> and the <b>resistance</b> of an appliance.						
I can explain how to calculate the <b>efficiency</b> of a device.						
I can describe ways in which the efficiency of an energy transfer can be improved.						

Energy resources						
I can explain the difference between a <b>renewable</b> and <b>non-renewable</b> energy resource.						
I can name examples of <b>renewable</b> energy resources.						
I can name examples of <b>non-renewable</b> energy resources.						
I can identify the main uses of energy resources.						
I can explain why some energy resources are more reliable than others.						
I can describe the environmental impacts of various energy resources.						
I can explain <b>trends</b> in the use of energy resources.						
I understand that science is able to identify environmental issues linked to energy resources but that decisions about whether to use a particular resource also involve social, political, ethical and economic considerations.						

**Book references:**

H = *Physics* by England and Whitney  
(published by Hodder)



O = *Physics* by Breithaupt  
(published by Oxford)



## Equations you must learn

The equation that links <b>energy</b> , <b>power</b> and <b>time</b> .	
The equation that links <b>power</b> , <b>current</b> and the <b>potential difference</b> .	
The equation that links <b>power</b> , <b>current</b> and the <b>resistance</b> .	
The <b>efficiency</b> equation – version 1	
The <b>efficiency</b> equation – version 2	